Chapter 4: Investing in Water Resources Sustainability

November 17, 2017

Aligning investments and funding mechanisms with Californians' values is necessary to effectively move toward sustainability. Californians place a high value on statewide sustainability, yet many water resources management sectors in California lack the stable and sufficient funding needed to improve resiliency, maintain existing systems, restore ecosystems, and improve reliability. Update 2018 provides the analysis, findings, rationale, recommendations, and accountability for sufficient and stable funding of State actions that contribute toward societal values. Annual historical funding will not support the level of investment needed for statewide sustainability. Additional funding is needed for actions that the State is uniquely positioned to accomplish, which will improve California's watersheds; allow for ongoing actions to operate, maintain, repair, rehabilitate, and replace existing systems; and track and report progress toward water resources management sustainability.

Setting and Scope

Some water management sectors, such as water supply reliability and water quality, are predominately funded by ratepayer revenues, as well as through local revenue bonds for larger capital investments. On the other hand, flood management (including stormwater management), statewide planning and data management, statewide infrastructure, disadvantaged communities, legacy impacts, and ecosystem management often do not have stable or sufficient funding. State government has a major role in supporting many of these actions. Historically, State funding for water resources management predominately consists of state general fund dollars and general obligation bonds. Funding for actions that help ensure desired outcomes from past investments (e.g., operation and maintenance) and future investments (e.g., data and planning) are often inadequate or unstable. This has caused a significant decline in the condition of some water system infrastructure and ecosystems.

While local, federal, and other stakeholders play a crucial role in funding water management actions, the scope of Update 2018's funding recommendations are focused on State government roles, responsibilities, and obligations for sustaining California's water resources. While the estimated funding needs exceed California's willingness and ability to pay, Update 2018 uses a principled, disciplined approach by recommending a realistic increase in State government funding for the actions recommended in Chapter 3. While a 50-year planning horizon was used to examine long-term funding needs and trade-offs, the five-year implementation period for Update 2018 (2019 – 2023) is emphasized.

Building on Update 2013 Finance Accomplishments and Commitments

Funding conversations and decision-making are complicated and often contentious. But, broad agreement was accomplished in California Water Plan Update 2013 (Update 2013) regarding several fundamental aspects of State government funding. Update 2018 builds on the accomplishments and makes significant strides in fulfilling agreed-upon principles and shared values in developing viable, well-vetted State integrated water management (IWM) investment and funding recommendations. Table 4-1 illustrates how key finance components of Update 2013 accomplishments and agreements are advanced in Update 2018.

Table 4-1: Summary of Update 2018 Leveraging and Fulfillment of Update 2013 Accomplishments and Commitments [*Note to reviewer: Table populated with placeholder text- will be refined]*

Update 2013 Accomplishment/Commitment	**Update 2018 Advancement/Fulfillment**
• Balanced regard for comprehensive social criteria • Improving cost effectiveness, efficiencies, and accountability • Prioritization method and rationale for apportioning IWM investment based on values • Increasing certainty of desired outcomes • Enhancing stewardship of State government monies at statewide and regional scales	Annual Progress Report; Operational description and clear vision for sustainability and associated social values plus establishment of Sustainability Outlook
Timely decision-making despite ever-present uncertainty	Adaptive policy-making made possible through Sustainability Outlook
Not redirecting State government funding from its authorized purpose	Annual progress report
Investment decisions accounting for the availability of future revenues	Funding mechanism and recommendations considered public's ability and willingness to pay
Cost of borrowing, and risks of indebtedness considerations	Long term costs and other trade-offs examined for funding scenarios that range from pay as you go to exclusive use of general obligation bonds
Avoiding stranded costs and funding discontinuity	Minimizes stranded costs of governance by leverage existing entities such as RWMG's and GSA's. Underscores the value of funding continuity and recommends solutions to enhance stability.

Funding Needed for Recommended Actions

Identifying, analyzing, and recommending ways to implement the recommended State actions (including local/regional assistance) in Update 2018 is essential to putting California on a more sustainable path. The first step is estimating the funding required to implement the recommended actions in Chapter 3 (recommended actions). This forms the basis of the recommended funding scenarios in Chapter 5. To put these costs in perspective, Update 2018 includes a broader estimate of funding needs for all IWM actions across State, local, and federal agencies[1].

Providing Context - IWM Funding Needs

The purpose of estimating statewide IWM funding needs across all levels of government is to support a common understanding of the broader context of funding needs for water-related management actions planned within California. The IWM funding need estimates represent the most recent and complete estimate of planned and proposed water resources management actions. Estimated need is arranged by water management sectors (i.e., flood management, water supply reliability, water quality, ecosystem management, and people and water) because the suitability of funding mechanisms varies based on the sector.

The estimated need is based on the best readily available information, and will continue to be refined in future Water Plan Updates. The total estimated need is more than $365 billion during the next 50 years. If current funding levels are maintained, there is a funding gap of more than $175 billion during the next 50 years. Update 2018 does not include recommendations for funding this larger, contextual need.

Table 4-2 provides the estimated need for water resources management in California. The estimated need includes capital costs of more than $189 billion and ongoing costs of approximately $1.4 billion annually (including costs for safe and affordable drinking water for disadvantaged communities).

Cost of Initiating Update 2018 Actions

The cost of implementing recommended actions in Update 2018 total more than $102 billion for capital and less than $100 million per year for ongoing actions. Update 2018 calls for an incremental increase in State funding to begin advancing the recommended actions at a feasible rate, but this is not enough to immediately and fully fund all recommended actions. An additional $2 billion to $5 billion per year (gradually increasing over the next 50 years) is recommended. This jumpstarts the State's roles and responsibilities in implementing the recommended actions, and includes additional funding for financial and technical assistance at local and regional levels. Table 4-2 also shows estimated funding needs for each of the five Update 2018 priorities. Using a "realistic funding ask" to implement recommended actions will provide decision-makers with a practical knowledge base to invest among the five priorities. This knowledge also helps maximize the return on investment by directing funding toward well-defined desired outcomes.

[1] Funding need estimates do not include administration, operations and maintenance, and other transactional costs of local and federal agencies.

Table 4-2. State, Local, and Federal Capital Water Management Needs in California (2016 Dollars) [1,2]

Water Management Sectors	Identified Need	
	Capital ($ Million)	Ongoing ($ Million/Year)
Flood Management	$35,270	$650
Water Supply Reliability	$74,440	$380
Water Quality[3]	$51,900	$200
Ecosystem Management[4]	$27,160	$90
People and Water	$240	$50
Total	**$189,010**	**$1,370**
Update 2018 Recommended Actions		
Improve Alignment of Agencies' Initiatives and Governance	$0.00	$0.1
Improve Regulatory Framework to Reconcile Environmental Needs and Human Activities	$0.00	$0.1
Provide Water Resources Managers Resources, Knowledge, Skills, and Tools Needed for Data-Driven Decision-Making	$0.00	$59.4
Modernize and Rehabilitate Water Resources Management Systems	$102,500	$36.2
Provide Sufficient and Sustainable Funding	$0.00	$0.1
Total	**$102,500**	**$95.9**
Total	**$291,510**	**$1,470.9**

Notes:

[1] Partial estimate based on best available State, local, and federal plans and information. Plans and associated funding needs are generally constrained by existing planning capacity, funding constructs, and funding levels; therefore, they do not necessarily represent the full statewide funding needs. Ongoing need estimates are primarily from DWR.

[2] Table columns and row totals may not sum correctly due to rounding.

[3] This includes costs for safe and affordable drinking water for disadvantaged communities as estimated by the California Public Policy Institute (PPIC; PPIC. 2017. Priorities for California's Water. Accessed online at http://www.ppic.org/wp-content/uploads/r_1017ehr.pdf on November 9, 2017).

[4] There are very few comprehensive plans and funding estimates for ecosystem management at either watershed statewide scales. As such, an average annual funding demand of $500 million is assumed over the 50-year planning horizon – not adjusted for time-value of money (PPIC. 2014. Paying for Water in California. Accessed online at http://www.ppic.org/content/pubs/report/R_314EHR.pdf on November 9, 2017.).

Funding Mechanisms

A mix of funding mechanisms must be implemented to provide the stable and sufficient funding for capital (large magnitude, short duration) and ongoing (low magnitude, long duration) management actions. Stable funding helps increase efficiency and return on investment for addressing many of California's most pressing issues. This list includes deferred maintenance; avoided costs associated with planning, research, development, or construction disruptions; and minimization of stranded investment from data gaps and inaccessibility.

There are several existing and novel mechanisms that can be used to implement management actions. Each funding mechanism has a unique set of characteristics including applicability, feasibility, interannual reliability, and limitations. These characteristics informed Update 2018's funding recommendations. Update 2018 includes several funding scenarios comprised of various mechanisms. Scenarios were used to help understand the feasibly, pros, and cons, of using various mechanisms to pay for management actions. The scenarios provide decision makers, stakeholders, and the State with insight in formulating a strategy to fund the recommended actions in Chapter 5.

Tables 4-3 through 4-5 provide a list of existing and novel State funding mechanisms, along with their respective attributes.

Table 4-3. Summary of Existing and Novel Funding Mechanisms

Funding Mechanism	Description
Existing Mechanisms	
General Fund	A fund used for the daily and long-term operations of the State, local, or Federal agencies. The general fund is typically supported with revenues that are collected on a regular basis with few restrictions on the use of those funds, primarily income and sales taxes. The general fund can be used for capital, O&M, and ongoing actions.
General Obligation Bond	A general obligation bond is a municipal bond backed by the full faith and credit of a jurisdiction rather than solely by the revenue of a specific project. Issuance of State general obligation bonds requires a statewide vote. Time is required to prepare language for the bond measure for the statewide vote, as well as a time lag before funds would be available after passage. General obligation bonds are generally used to fund capital actions. The State must pay back the principal (amount raised), plus bond issuance cost, and interest over the life of the bond.
Greenhouse Gases (GHG) Cap-and-Trade Program Fund	A market based program to reduce GHG emissions using a cap and trade program that includes an annually declining limit on GHG emissions. The State sets an annual cap on total emissions and auctions off emission allowances to GHG emitters, who may subsequently buy or sell allowances among themselves. For the auction proceeds to be used to fund water resources management actions, the action must show a nexus in reducing GHG emissions.
User Fees	A tax or fee based on the principal of either a beneficiary paying for a service or good, or a polluter paying for costs associated with damages to the environment. Examples include: State Water Resources Control Board Drinking Water, Water Quality, and Water Rights fees; local development fees, and water rates. A user fee requires legislation that stipulates the types of benefits that can be assessed actions permitted under the fee.
Novel Mechanisms	
Watershed or River Basin Assessment	A watershed or river basin assessment could be used to fund IWM. The watershed or river basin assessments would be assessed statewide with funding returned to watershed or river basins to support implementation of management actions previously identified in a regional sustainability plan.
Water Surcharge Fee	A water use surcharge on retail water sales could be used to generate revenue for water projects. The fee could support actions including integrated water resources management. Revenue generated by a water use surcharge would require actions funded to demonstrate a nexus to the tax.
Risk Reduction Insurance	Risk reduction insurance could be used to support funding of management actions to reduce risks from flooding, droughts, climate change, and unreliable water supplies. Implementation would involve the State partnering with private insurers and underwriters to effectively develop a State insurance program. The insurance program would be structured to allow the State to use a portion of the insurance premiums on implementing management actions to reduce risk and the remaining amount to purchase private catastrophic insurance.
Water Markets	Water markets allow willing buyers and sellers to shift the use of water through exchanges, one-time purchases, short-term leases, long-term leases, or permanent sale of water rights or contract quantities. Revenue could be generated from water markets by assessing a fee or per unit charge for each transfer, which could be used to implement management actions.
Public Private Partnerships	Public-private partnerships (P3s) are long-term contractual agreements between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance[2].

Notes:
[1]Based on best available plans and information from California Department of Finance.
[2]Marin, Philippe. 2009. Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries. Trends and Policy Options; no. 8. World Bank. https://openknowledge.worldbank.org/handle/10986/2703 License: CC BY 3.0 IGO.
GHG– greenhouse gases
O&M – operation and maintenance
P3s – public private partnership

Table 4-4. Frame of Reference for Future Use of Existing Funding Mechanisms

(Based on Average and Maximum Historical Expenditures 2006-2015[1,2])

Funding Mechanism	Historical Average ($ in Millions)	Historical Maximum ($ in Millions)
State General Fund	$150	$300
State General Obligation Bond	$2,440	$3,410
Local Agency[3]	$810	$1,060
Federal Government[4]	$410	$540

Notes:
[1] Table columns and row totals may not sum correctly due to rounding.
[2] Average and Maximum Historical State Expenditures do not include designated State special funds.
[3] Local agency funding is from city, county and special district general funds, user fees, and general obligation bonds for water resources associated capital and some ongoing actions (excludes administrative and local agency O&M activities).
[4] Federal government funding is from congressional appropriation for BLM, FEMA, NOAA, NPS, NRCS, Reclamation, USACE, and USFS, water resources management associated capital and some ongoing actions (excludes administrative and Federal O&M activities).

Table 4-5. Analysis of Appropriateness of Existing State Funding Mechanisms

Funding Mechanism	Inter-annual Reliability (High, Moderate, Low)	Applicability (High, Moderate, Low)	Cost Share Range (Minimum – Maximum)
Existing Mechanisms			
General Fund	Moderate dependent upon State budgeting	High: OMRR&R and ongoing actions Low: capital actions	20 to 100% for capital, data, tools, and planning actions Up to 100% for ongoing and policy actions
General Obligation Bond	Low	High: Capital actions Low: Ongoing actions	20 to 100% for capital, data, tools, and planning actions N/A: O&M
Greenhouse Gases (GHG) Cap-and-Trade Program Fund	Moderate dependent upon market factors	High: ecosystem and other actions that reduce GHG N/A: capital, OMRR&R, ongoing actions unrelated to GHG reduction	Up to 80% of capital and planning actions that show nexus to GHG reductions
State User Fees	High	High: actions related to benefit N/A: capital, OMRR&R, ongoing actions unrelated to identified fee benefit	Up to 80% of capital and planning actions related to benefit N/A: O&M and policy actions
Novel Mechanisms			
Watershed or River Basin Assessment	High	High	Up to 100% for State services and policy actions Up to 80% of infrastructure and planning actions N/A: O&M
Water Surcharge Fee	Moderate dependent upon resource usage	Moderate dependent upon nexus to fee	Up to 80% of capital, ongoing, and policy actions related to benefit
Risk Reduction Insurance	Moderate dependent upon number of insurance policies purchased	Moderate dependent upon linkage to risk reduction actions	Up to 100% of risk reduction related capital, ongoing, and policy actions
Water Markets	Variable/Moderate dependent upon market factors	Moderate dependent upon nexus to resource benefit	Up to 80% of capital, ongoing, and policy actions
Public Private Partnerships	High	Low – Legislative changes are needed for implementation	Up to 100 % with potential reductions from innovation and cost savings

Notes:
OMRR&R – Operations, Maintenance, Repair, Rehabilitation, and Replace
GHG- greenhouse gases

Funding Scenarios

A variety of funding mechanisms were used to create several funding scenarios. Each scenario is comprised of a unique mix of mechanisms to pay for the additional funding called for in Update 2018. Each funding scenario results in different benefits and impacts. The scenarios evaluate the plausibility and trade-offs of different combinations of funding mechanisms. Funding scenarios that are plausible with acceptable trade-offs are presented in Chapter 5, *Implementation and Funding Scenarios.* These can be used by the governor, Legislature, and other decision-makers to formulate funding policies that meet Californians' funding preferences and priorities.

The six funding scenarios include:

Scenario A: Current Trends Continue – Represents average annual State, local, and federal historical funding levels. This scenario provides a common frame of reference to examine changes occurring in other scenarios.

Scenario B: Heavy Reliance on Borrowing – Increases State general obligation bonds to help pay for the Update 2018 recommended actions. This scenario illustrates the level of debt incurred and the total cost over 50 years if State general funds remain at historical annual average levels, no novel mechanisms are utilized, and State general obligation bonds are increased to pay for recommended actions. Local and federal funding remains at historical annual averages.

Scenario C: Heavy Reliance on State General Fund – This scenario explores increasing appropriations from the State general fund to implement the recommended actions. State general obligation bonds remain at historical annual averages and no novel mechanisms are utilized. Local and federal funding remains at historical annual averages.

Scenario D: Historical Maximum Existing Mechanisms and Implementation of Novel Mechanisms – Uses a combination of maximum historical annual funding for State general fund and general obligation bonds, in addition to implementing novel mechanisms to pay for implementing the recommended actions. Local and federal funding remains at historical annual averages.

Scenario E: Using State General Fund to Defray Implementation of Novel Mechanisms – Same as Scenario D, but replacing the use of novel mechanisms with increased appropriations from the State general fund. This scenario explores the prospect of using the State general fund to defray the cost of implementation of novel mechanisms. Local and federal funding remains at historical annual averages.

Scenario F: Accelerated Funding – Uses the maximum historical annual funding level of the State general fund, implements novel mechanisms at the same level as in Scenario D, and increases State general obligation bonds to meet an accelerated implementation of the recommended actions. Local and Federal funding remains at historical annual averages.

Scenario G: Pay as you Go – Exclusively relies on the use of State general funds and novel mechanisms to pay for the recommended actions. No new borrowing (State general obligation bonds) is undertaken. Local and Federal funding remains at historical annual averages.

Findings

There are many complexities, considerations, and unknowns surrounding the identification, implementation, and administration of the most appropriate, feasible, equitable, and cost-effective way to pay for Update 2018 implementation. The findings below provide insights and guidance that is intended to inform and rationalize the funding scenarios presented in Chapter 5. More specific and quantitative funding *scenario findings* provide a common understanding of specific trade-offs of the different funding scenarios and help determine the recommended funding scenarios presented in Chapter 5.

General Findings:

- Annual historical funding will not support the level of investment needed for statewide sustainability.
- Historical expenditures were often driven by funding constructs that have not adequately funded what Californians value.
- Public benefits from flood management, statewide planning and data, statewide infrastructure, disadvantaged communities, ecosystem management, and remediation of legacy impacts are often inadequately or unstably funded. State government has a major role in many of these areas.
- Water supply reliability and water quality management actions have more reliable funding because they are ratepayer supported. However, there is still insufficient funding in some areas of the State.
- State government does not have a stable and sufficient funding mechanism to assist disadvantaged communities in securing funding for capital investment and, to a greater extent, operation, maintenance, and other ongoing funding needs.
- Increasing funding from local and Federal mechanisms to match State expenditures results in earlier implementation of management actions, especially for capital actions. This early implementation is a result of additional funding becoming available sooner.
- Implementation of some of the novel mechanisms could provide more stable, long-term funding for management actions.
- Funding for ongoing management actions are underfunded compared to capital management actions. This has caused significant deferred maintenance for much of the state's infrastructure.
- A blend of several existing and novel mechanisms is necessary for sufficient and stable funding for water resources management.
- One of the most effective and flexible methods for State government to invest in statewide suitability is to provide local and regional financial assistance with specified desired outcomes. The outcomes must reflect the public benefits, consistent with State government's roles and responsibilities, at the appropriate scale (e.g., watershed). Local and regional entities can then determine the best way to accomplish the outcomes based on local/regional priorities, conditions, and available solutions.

Funding Scenario Findings:

The results of exploring the trade-offs and sensitivities for each funding scenario are shown in Table 4-6. The metrics used to identify trade-offs and plausibility of different funding scenarios are as follows:

- *Total Annual Funding by Funding Mechanism* – Enables comparison of total annual funding for each State, local, and federal funding mechanism.
- *Annual Fiscal Impacts of Novel Mechanisms* - Illustrates the relative magnitude of cost impacts from novel mechanisms.
- *Cost per Household* – It is hypothetical and not intended to signal a specific funding mechanism nor an actual distribution of costs among households. The equivalent cost per household is shown in two ways. This first spreads costs equally across all Californian households (100 percent pay). The second assumes 90 percent of households pay. This reflects the realities of the state's socio-economics and demographics (it is assumed that 10 percent of Californian households are below the poverty line, as defined by the U.S. Census Bureau, and may not have the ability to pay).[2, 3]
- *Equivalent cost per capita* –It is hypothetical and not intended to signal a specific funding mechanism nor an actual distribution of costs among Californians. The equivalent cost per capita is shown in two ways. The first is spread equally across all Californians (100 percent pay), and the second assumes 85 percent of the population pays. This reflects the realities of the state's socio-economics and demographics. It is assumed that 85 percent of California's total population would be responsible for funding 100 percent of the novel mechanism.[3, 4]
- *Per Parcel* – It is hypothetical and not intended to signal a specific funding mechanism nor an actual distribution of costs among parcels. Calculated as a flat amount of dollars per parcel (based on Fiscal Year 2014-2015 number of taxable parcels in California) required to generate funding for novel mechanism[5]
- *Dollars per $100 of Assessed Value of Property* – It is hypothetical and not intended to signal a specific funding mechanism nor an actual distribution of costs among properties. This metric indicates the equivalent of an ad valorem tax rate in terms of dollars per $100 of net assessed value required to generate funding for novel mechanism. The net assessed value is based on Fiscal Year 2014-2015 secured local tax rolls. [5]
- *Percentage of Need Funded* – Percentage of total capital and ongoing needs that are funded in each scenario.

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[2] Number of household estimates (13,307,614) and persons per household (2.79) are from California Department of Finance County/State Population and Housing Estimates, January 1, 2017. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/

[3] Number of households and persons under the poverty line are from American Community Survey, Percentage Of Families And People Whose Income In The Past 12 Months Is Below The Poverty Level. http://www.dof.ca.gov/Reports/Demographic_Reports/American_Community_Survey/

[4] Population estimates are from California Department of Finance State/County Population Estimates with Annual Percent Change. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/

[5] Number of parcels (11,649,442) and net assessed evaluation ($4,604,886,582,000) are based on FY 2014-2015 Secured Local Tax Roles.

Specific findings related to each scenario are as follows:

Scenario A: Current Trends Continue – A significant funding gap will remain over the 50-year planning period. As State investments are prioritized to fully fund ongoing management actions, less funding is available for capital management actions. This prioritization would limit the amount of available State funding for local assistance programs. Overall, less than 10 percent of all capital management actions will be funded.

Scenario B: Heavy Reliance on Borrowing – To maximize funding from increased State general obligation bonds, local cost shares will need to increase in a proportionate fashion for some water sectors such as flood management. If local funding is increased, more State general obligation bonds will be used to fund capital management actions. But, increasing State general obligation bond funding will not fully fund all capital and ongoing management actions. It will also result in significant increased debt service from accrued interest. Doubling historical average funding from State general obligation bonds would be required to fully fund ongoing actions.

Scenario C: Heavy Reliance on State General Fund – This scenario would require a considerable increase (more than 15 times the historical average) in State general fund appropriations for water management. Fewer State general obligation bonds and an increased reliance on the State general fund lowers long-term debt service. State general fund appropriations have a lower interannual reliability because they must compete with other State services for funding. Historically, patterns of general fund appropriations are highly reactionary and are not stable enough to align with State planning efforts. Increasing State general fund appropriations enables all recommended and ongoing actions to be funded, and increases the number of capital management actions funded.

Scenario D: Historical Maximum use of Existing Mechanisms and Implementation of Novel Mechanisms – By implementing novel mechanisms, a dedicated funding mechanism for capital and ongoing management actions is available for underfunded water sectors and areas of state. A tax or assessment, such as less than $10 a month per household (excluding households that fall below the poverty line), could realistically be implemented. Novel mechanisms would decrease State borrowing and reduce the debt service from State general obligation bonds. In addition, when combined with an increase in local funding, more capital management actions would be funded. But, any new tax or assessment will require legislation.

Scenario E: Using State General Funds In-Lieu of the Novel Mechanisms Used in Scenario D – This will require an increase of more than eight times the historical average of State general fund appropriations for water management, as well as an increase in State general obligation bond funding. Scenario E is more viable than Scenario C because it has a more balanced approach to funding, more realistic increases in State general fund appropriations and State general obligation bond issuance, and less long-term debt service.

Scenario F: Accelerated Funding – An accelerated implementation of the recommended actions requires a significant increase in funding from State general funds, an increased amount of State general obligation bond funding, and the implementation of novel mechanisms. An accelerated funding scenario may provide a more balanced approach to funding (as each State funding mechanism is increased), but significant challenges remain, including:

- Significant debt accrued because of increased State general obligation bonds.
- Implementation of novel funding mechanisms will require legislation for a new tax or assessment.
- May overwhelm State and local institutional capacity to perform work. Examples include initial shortages in staffing or expertise.

To implement all management actions under this scenario, existing State and local funding would need to double, and federal appropriations would need to be increased.

Scenario G: Pay as you Go – To pay for management actions without borrowing, State general fund appropriations would need to increase, and novel mechanisms would need to be implemented. This scenario would require a considerable increase in State general fund appropriations for water management (more than 15 times the historical average). State general funds have a lower interannual reliability because they must compete with other State services. In addition, implementation of any new tax or assessment will require legislation. In this scenario, the funding required from novel mechanisms would be considerable, making the public's ability to pay unattainable and potentially not politically viable.

Funding Scenarios A, B, C, F, and G are not advanced in Chapter 5 because of unacceptable trade-offs, gaps in funding management actions, and an unrealistic increase in overall costs. Scenarios D and E are plausible and have more acceptable trade-offs. These two scenarios will be presented in Chapter 5 as alternative funding scenarios for implementation by the legislature and governor's administration.

Placeholder: Table 4-6 presents the scenarios trade-off analyses.